

## BOOK REVIEW

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### Review of: *Forensic Science in Court: Challenges in the Twenty-first Century*

**REFERENCE:** Shelton D. *Forensic science in court: challenges in the twenty-first century*. Lanham, MD: Rowman & Littlefield Publishers, Inc., 2011, 175 pp.

*Forensic Science in Court: Challenges in the Twenty-first Century* is part of a series of books exploring “Issues in Crime and Justice.” “Books in the series are written to be used as supplements in standard undergraduate and graduate courses in criminology and criminal justice and related courses in sociology.” *Forensic Science in Court: Challenges in the Twenty-first Century* would be well suited for this line of study. The series editor identifies introductory courses in criminal justice, law enforcement, corrections, juvenile justice, crime and delinquency, criminal law, white collar, corporate, and organized crime as areas where the books of this series would be a good fit. Should this book be used in compliance with its stated purpose, it is a perfectly suitable supplement.

Structurally ambitious, *Forensic Science in Court: Challenges in the Twenty-first Century* seeks first to provide the reader with basic information about the legal requirements for admissibility of forensic evidence post *Daubert*. The book then identifies various forensic disciplines, providing, in most cases, a brief description of the fundamentals of the science, as well as a smattering of case law illustrating the application of *Daubert* and sometimes *Frye*. At the end of most topics, a case study is provided, using real cases to showcase both the science and the admissibility challenges presented. The author includes a reasonable amount of pictures to illustrate such things as microscopic hair comparison. The case studies and pictures will be helpful to the sociology or criminal justice major, who otherwise may have not context for comparison. The author also dedicates an entire chapter to the CSI myth, and how jurors view forensic science evidence.

The author does a nice job in Chapter 1, as well as interspersed in the balance of the text, of outlining some of the problems inherent in the system itself, such as the failure of the defense bar to challenge forensic evidence, the blind faith of the prosecution in the absolute certainty of the science, the overstating of the evidence by practitioners, and the reluctance of the judiciary to exclude evidence which may hamper the prosecution’s case. In Chapter 2, Judge Shelton does a wonderful job explaining the *Daubert* trilogy in language the criminal justice or sociology undergraduate can understand. The balance of the book addresses forensic sciences, social sciences, and today’s culture as it impacts potential jurors. Topics include DNA, fingerprints, handwriting/questioned documents, hair examinations, bite-marks, toolmark and firearms, bullet lead analysis, fire explosion and

arson, bloodstain pattern evidence, as well as eyewitness identification and forensic abuse syndromes. Of note for the lawyers is the chapter on juries, the CSI Myth, the Tech Effect, and how jurors process forensic science or the lack thereof.

This text offers a snapshot of information about various forensic sciences and the law in a manner that engages the reader. The college or graduate sociology student will no doubt find this text elevates their understanding of forensic science, as well as the framework within which it is, or, in rare cases, is not, admitted into court. It is unfortunate the author did not spend more time on the section entitled “Bullet lead comparison,” which received a mere three paragraphs. The admission of testimony in this area, and the subsequent study and fall from grace serves as a cautionary tale the reader could easily understand and appreciate.

Despite the representations of its intended purpose inside the cover, the promotional quotes on the back cover of the book claim this text is “essential reading” and “a valuable resource” for lawyers and judges. Under no circumstances should a lawyer or judge look to this book as the exclusive source of information regarding areas where law and forensic science intersect. The book would have benefited from the assistance of a scientist. The author paints the picture with broad strokes, without regard to the technical nature of the sciences. For example, the author points to the emergence of DNA testing as a new science which resulted in some courts reassessing “the validity of such things as serology testing, comparative bullet lead analysis, bitemark identification, handwriting analysis, hair and fiber analysis, and toolmark and ballistics testimony” (p. 12). The failure to appreciate the distinction between sciences that may not have been sufficiently validated, or found not to be valid, and those that are valid but have limits on their usefulness, will grate on the reader with scientific training. The average college student, however, will likely fail to appreciate the distinction and perhaps, for their field of study, there is no need to.

The author relies on outdated information in some instances. For example, “We are in what has been described as the ‘fifth phase’ of the judicial evaluation of DNA admissibility,” citing a text from 1999 and a law review article from 2001 (p. 28). The author informs the reader that “common methods” used to generate DNA profiles include restriction fragment length polymorphism, a method which hasn’t been used since STRs were validated and their use litigated during the aforementioned “fifth phase” of judicial evaluation in the late 1990s and early 2000s. In a discussion on the use of eyewitness identification experts to explain to the jury studies illustrating the limits of eyewitness identification, the author asserts that while in the past, courts have not allowed this testimony, “[o]thers, especially in more recent cases, have rejected this ‘common knowledge’ approach in favor of scientific research

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casting doubt on such ‘myths’” (p. 110). The most recent case cited in the end notes to support this proposition is from 2003.

The author misstates the random match probability, asserting, “The odds that the DNA on the stockings had come from someone other than Leiterman were 170 trillion to one” (p. 33). This misstatement is commonly known as “the prosecutor’s fallacy” and has been discussed in the literature since William C. Thompson and Edward Schumann coined the phrase in 1987 (1). The inability to appreciate the distinction between a random match probability and source probability has no place in a text on forensic science and the law.

The lawyer and judge may, however, find some use in the extensive source citations both within the text and in end notes, which will lead the reader to other articles, texts, and resources. For example, the lawyer seeking information on toolmarks would find the quote: “A significant amount of research would be needed to scientifically determine the degree to which firearms-related toolmarks are unique or even to quantitatively characterize the probability of uniqueness” (p. 84) and a reference to the 2008 National Research Council of the National Academy of Sciences, *Ballistic*

*Imaging*. This alerts the lawyer both that there is some question as to whether toolmarks are unique and where to find more extensive information on the subject.

Discussing forensic science in conjunction with the laws that dictate its use in court is essential. This text likely will satisfy the needs of the criminology major. It explains in clear, if sometimes imprecise, language various types of forensic evidence and the circumstances surrounding its admission into court. The case studies are interesting. Each area of forensic science discussed provides general information, but is not completely autopsied—which may be both the book’s greatest strength and its greatest weakness. There is enough information to keep the reader interested, but not necessarily enough to provide sufficient background to adequately understand the strengths and limitations of the sciences.

### Reference

1. Thompson WC, Schumann EL. Interpretation of statistical evidence in criminal trials: the prosecutor’s fallacy and the defense attorney’s fallacy. *Law Hum Behav* 1987;11(3):167–87.